



1724

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

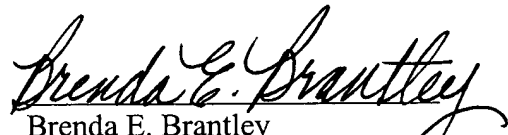
Applicant(s): Bonnie R. Hames et al.)
Serial No.: 10/031,208) Art Group: 1724
Filing Date: May 24, 2002) Examiner: C. Barry
Title: Phenol Removal Pretreatment Process) Atty. Dkt. No. NREL 98-21

CERTIFICATE OF MAILING UNDER 37 CFR § 1.8

I hereby certify that the following attached items:

- Amendment Under 37 CFR § 1.115 [5 pages]
- Postcard receipt

are being deposited in the United States Postal Service as first class mail, postage pre-paid, in an envelope addressed to: Assistant Commissioner for Patents, U.S. Patent & Trademark Office, P.O. Box 1450, Mail Stop Non-Fee Amendment, Alexandria, Va 22313-1450 on this 12th day of June 2003.


Brenda E. Brantley
Senior Patent Administrator

National Renewable Energy Laboratory
1617 Cole Boulevard
Golden, CO 80401
303/384-7572
303/384-4799 (fax)



OIP/E
JUN 16 2003
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bonnie R. Hames et al.

Serial No. : 10/031,208

Filing Date: 05/24/02

Title: Phenol Removal
Pretreatment Process

Atty Dkt. No. 98-21

Examiner: C. Barry

Art Group Unit: 1724

AMENDMENT UNDER 37 CFR §1.115

Commissioner For Patents
P.O. Box 1450
MS Non-Fee Amendment
Arlington, VA 22313-1450

Sir:

In reply to the Office Action mailed May 21, 2003, please amend the claims as follows:

IN THE CLAIMS:

1. (Twice Amended) A process for selective adsorption of biomass derived phenols selected from the group consisting of guaiacol, syringol, isolugenol, vanillin, and lignin from a biomass hydrolysate medium comprising:
 - (a) contacting a mixture comprising the biomass hydrolysate medium and a metal oxide;
 - (b) forming a phenols compound metal oxide complex;
 - (c) removing the phenols metal oxide complex from the mixture; said metal oxide is selected from the group consisting of titanium oxide, vanadium oxide, [and] zirconium oxide[.], manganese dioxide, aluminum oxide and silicon dioxide.

5. (Amended) The process of claim 1 wherein [the metal oxide is selected from the group consisting of manganese dioxide, silicon dioxide, and aluminum oxide, and further comprising adjusting] after step (a), the mixture is adjusted to a pH in the range of 1.5-11 [after contacting].